

ENGLISH



# Operation Manual

## Magnetic stirrer with heating uniSTIRRER 3



# 1. Safety instructions

## Before operation

- Read the Instruction Manual carefully before use.
- Ensure that only trained staff use the instrument. The instrument may only be opened by a qualified and trained technician.
- Make sure the socket is earthed before use.
- Set the instrument on a stable, clean, dry, non-slip and fireproof surface.
- Do not operate in hazardous areas.
- Before each use, check the instrument for damage. Do not use damaged components.
- The operation voltage noted on the label must match.
- Always disconnect the plug before fitting accessories.
- When working, wear personal protection to avoid the risk from splashing of liquids and possible glass breakage which can result from mechanical vibrations.

## During operation

- Gradually increase the speed, reduce the speed if:
  - the stirring bar breaks away due to high speed, or
  - the instrument is not running smoothly, or
  - the container moves on the base plate.
- Temperature must always be set at least 25 °C lower than the fire point of the media used.
- Be aware of hazards due to:
  - flammable materials or media with a low boiling temperature, or
  - overfilling of media, or
  - the container is unsafe.
- Do not work with defective parts.
- When the external temperature sensor is required, the tip of the measuring sensor must be at least 5 - 10 mm from vessel bottom and wall.
- The instrument can only be disconnected from the main power supply by pulling out the main or the connector plug.
- Keep a good, clear distance around the instrument (at least 10 cm from wall/other equipment).
- Keep away from high magnetic field.

## 2. Product description

The instrument is designed for stirring liquids. The stainless steel surface of the heating plates provides a durable surface with high chemical resistance.

Normal use:

The instrument is designed for use in professional laboratories, university and school .

Do not use it in residential areas.

## 3. Inspection

Unpack the equipment carefully and check for any damages. If the instrument is faulty you should contact your distributor.

The packing includes:

- 1 Magnetic Stirrer with Heating
- 1 Temperature sensor PT-1000 with stand
- 1 power supply EU or UK
- 1 Instruction manual

Please check all items are present.

## 4. Ambient conditions

- Power supply: 200 - 240 V 50/60 Hz
- Ambient temperature: 5 – 40 °C
- Relative humidity: < 80 %

Place the instrument on a safe and stable surface.

## 5. Operation

### 5.1 Control elements



Item	Description
Temperature control knob “Heat”	Sets the temperature parameters. The function “heating” is switched ON or OFF by pushing the temperature control knob.
Speed control knob “Stir”	Sets the stirring speed. The function “Stirring” is switched ON or OFF by pushing the speed control knob.
LED display	LED displays the real working state and all settings.
Probe	When the external temperature sensor PT 1000 is plugged in, probe icon  is lit.
Power switch	Switches the instrument ON or OFF
Temperature display area (1) 	When heating function was switched ON, the LED displays the temperature setting value and shifts to real value in 5 seconds. When the heating function is switched OFF and the heating plate temperature is still above 50 °C, LED displays “Hot”, otherwise LED displays OFF.
Speed display area (2) 	When stirring function was switched ON, the LED displays the speed setting value and flashes. The setting value does not flash until real speed reaches the set point.

## 5.2 Operating

### Initialisation

- Make sure the required operating voltage and power supply voltage match.
- Ensure the socket is properly grounded.
- Plug in the power cable, ensure the power is on and begin initialising.
- Add the medium into the vessel with an appropriate stirring bar.
- Place vessel on the heating plate.
- Set the target stirring speed and begin.
- Observe the stirring bar and LED display.
- Set the target temperature and start heating.
- Observe the LED display.
- Stop the heating and stirring functions.

If the operations above are normal the unit is ready to operate. If not, the unit may have been damaged during transit and in this case please contact your distributor.

**Warning!** Do not remove the vessel from the heating plate when the instrument is working.

## Heating function

The device is controlled by digital temperature control technology which has two separate safety circuits. The heating plate is kept at a constant temperature by a digital control circuit. For a precise display and control of temperature inside the medium, please use the external temperature sensor PT 1000.

- Plug in the external PT 1000.
- Set the temperature by turning the temperature control knob slowly to the target value.
- When the heating function is switched on, the LED displays the temperature value on the left-hand side.
- The heating function is switched on or off by pushing the heating knob.

When turned on, the instrument automatically displays the last running speed and temperature parameters. Generally, the LED screen cannot display the actual temperature of the sample in the vessel or of the surface of the heating plate. The temperature differences are as following:

- Heating plate center and outer edge.
- The sample in the vessel and the surface of the heating plate.

In order to ensure the accuracy of the temperature inside the container, please use the external temperature sensor PT1000.

## Using an external temperature sensor PT 1000

When the PT 1000 sensor is connected and the temperature control knob is rotated, the LED displays the temperature setting value and shifts to real value in 5 seconds. Compared with the temperature control of the heating plate, the external temperature sensor can control the medium's temperature more precisely. The heating function will be stopped automatically under abnormal conditions.

Please operate following the instructions below:

- Switch OFF the instrument.
- Ensure the external temperature sensor is inserted into the heated media.
- Switch ON the instrument and run heating function.

If the heating function does not work, please contact your distributor.

## **Residual heat warning (HOT)**

In order to prevent the risk of burns from the heating plate, the digital plate has a residual heat warning function. When the heating function is switched OFF and the heating plate temperature is still above 50 °C, the LCD will flash "HOT" to warn of the hazard of burns. When the unit is powered off, the LED screen displays the temperature of the heating plate and "HOT" in turn. When the plate's temperature drops to below 50 °C, the unit will automatically switch off. If you wish to turn off the LED immediately, just pull out the plug directly. When the plug is pulled out, the residual heat warning function cannot be run.

## **Stirring function**

The "stirring" function is switched ON or OFF by pushing the speed control knob. The speed range is 100 to 1500 rpm, in increments of 10 rpm.

## **Troubleshooting**

- Instrument can not be powered ON:
  - check that the power cord is plugged in.
- Fault in power on self test:
  - switch OFF the unit, then switch ON and reset the instrument to factory default setting.
- Stirring speed will not reach set point:
  - excessive medium viscosity may cause abnormal speed reduction of the motor.
- Unit does not power down when switched OFF:
  - check if the residual heat warning function is still ON and the heating plate temperature is above 50 °C (the LED screen will be flashing "HOT").

## **6. Maintenance and cleaning**

- Proper maintenance and cleaning will keep the instrument in good working order and will extend its life time.
- Be careful not to spray cleaning fluid into the instrument. Unplug the power cord when cleaning.
- Please use only Isopropyl alcohol and water containing tenside.
- Wear protective gloves during cleaning of the instrument.
- When not in use for long periods, switch off the instrument and store it in a dry, clean and stable place at room temperature.

## **Warranty**

This instrument is under warranty to be free from defects in materials and workmanship under normal use and service, for a period of 36 months from the date of invoice. The warranty claim expires

if the instrument is opened by untrained or unqualified staff. Our "General terms and conditions" apply.

apply.

## **Service**

If help is needed, please contact your distributor.

Please provide the customer care representative with the following information:

- Serial Number (on the rear panel)
- Description of problem (i.e., hardware or software)
- Methods and procedures adopted to resolve the problems
- Your contact information

## 7. Technical specifications

Parameter	Data
Voltage	200 - 240 V
Frequency	50/60 Hz
Power	515 W (heating) / 10 W (without heating)
Stirring points	1
Max. stirring quantity	3 l
Max. stirring bar length	50 mm
Motor type	DC motor
Motor power (input)	5 W
Motor power (output)	3 W
Speed range	100 – 1500 rpm
Display	LED
Heating plate diameter	135 mm
Heating power	500 W
Temperature range	Room temp to 280 °C (in 1 °C increments)
Safety temperature	320 °C
External temperature sensor*	PT 1000
Control accuracy with PT-1000	1 °C
Weight	1.4 kg
Permitted ambient temperature	5 - 40 °C
Permitted rel.humidity	< 80 %
Safety class according to DIN 60529	IP42
Dimensions (WxDxH)	160 x 220 x 95 mm



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